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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/584,751

Applicant(s)

SMITH ET AL.

Examiner

Thanh X Luu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-22 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group II, claims 1-12, 14-22 and 26-31 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the non-elected claims are a combination that includes the features of the subcombination (the elected claims). This is not found persuasive because if the combination does not require the subcombination for patentability and the subcombination can be used in other combinations, a restriction is proper. As set forth in the Election/Restriction requirement, such conditions are met.

The requirement is still deemed proper and is therefore made FINAL.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12, 14-22 and 26-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear in its given context how a light source is encoded. Examiner believes light from the light source is encoded, not the light source itself. Further, it is unclear in its given context what "based thereupon" refers to.

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Regarding claim 2, "the free end", "the attached end", "the one or more free ends", "the encoded light", "the one or more light guides", "said free ends" and "the attachment end" lack proper antecedent basis.

Regarding claims 3 and 15, it is unclear what "a mask extending of its length" means.

Regarding claims 4 and 16, it is unclear what it means for a mask to be "tapered of its length."

Regarding claim 8, "the attachment end" and "the free end" lack proper antecedent basis.

Regarding claim 14, "the vane arrangement", "the encoded light", "the free end" lack proper antecedent basis. Further, it is unclear in its given context how a light source is encoded. Examiner believes light from the light source is encoded, not the light source itself. Also, it is unclear in its given context what "based thereupon" refers to.

Regarding claim 18, "the respective free ends" lacks proper antecedent basis. Further, it is unclear in its given context how a light source is encoded. Examiner believes light from the light source is encoded, not the light source itself. Also, it is unclear in its given context what "based thereupon" refers to.

Regarding claim 20, "the encoded light source" lacks proper antecedent basis.

Regarding claims 11 and 21, "the first polarizing sheet" lacks proper antecedent basis.

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Regarding claim 26, "the light source" lacks proper antecedent basis. Further, it is unclear what "representative thereof" refers to.

Regarding claim 27, "said light intensity" lacks proper antecedent basis.

Regarding claim 31, "said encoding steps" lacks proper antecedent basis.

The other claims are indefinite by virtue of their dependency on an indefinite claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 8, 26, 29 and 30, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Mirza (U.S. Patent 5,816,246).

Regarding claims 1 and 8, Mirza discloses (see Figures 4 and 5) a measuring device for determining gas (air) flow through a conduit, comprising: a vane arrangement (16) extending into the conduit to be displaceable under the influence of gas flow in the conduit; a light source (34a, b) arranged to provide a uniform intensity of light over a range of displacement of the vane arrangement; an optical encoder (31) interposed between the light source and the vane arrangement effective over the range of displacement to encode light as a function of displacement under the influence of gas flow; and a light detector (36a, b) arranged to optically communicate with the encoded light and provide an output signal related to gas flow. Mirza further discloses (see

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Figures 4 and 5) the vane arrangement (16) has a smaller dimension in a portion proximate an attached end than a free end.

Regarding claims 26, 29 and 30, Mirza discloses (see Figures 4 and 5) a method of detecting gas flow through a conduit, comprising: encoding (31) a light as a function of displacement of a vane arrangement (16) located within the conduit under the influence of gas flow; and detecting (36a, b) the encoded light and producing an output signal related to gas flow. Mirza further discloses (see Figures 4 and 5) forming two sets of binary intervals of light and absence of light (with 31, 34a,b and 36a,b), the sets forming a binary pair sequence for displacement of the vane arrangement from which direction of flow can be determined, a binary interval count determines the flow magnitude (see Figure 7).

7. Claims 26-28, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchinson (U.S. Patent 5,847,288).

Regarding claims 26-28, Hutchinson discloses (see Figure 17) a method of detecting gas flow (see column 4, line 7) through a conduit, comprising: encoding (with 78) a light as a function of displacement of a vane arrangement (10) located within the conduit under the influence of gas flow; and detecting (see Figure 18) the encoded light and producing an output signal related to gas flow. Hutchinson further discloses (see Figure 18) the encoding step involves varying a light intensity linearly with vane displacement. Hutchinson also discloses (see Figure 17) a maximum light intensity represents maximum flow in one flow direction (to the left), and a minimum light intensity represents maximum flow in the opposite direction (to the right).

8. Claim 26, as understood, is rejected under 35 U.S.C. 102(b) as being anticipated by Edwards et al. (U.S. Patent 4,441,505).

Regarding claim 26, Edwards et al. disclose (see Figure 2) a method of detecting gas flow through a conduit, comprising: encoding (with 72) a light as a function of displacement of a vane arrangement (42) located within the conduit under the influence of gas flow; and detecting (with 84) the encoded light and producing an output signal related to gas flow.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 27-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Mirza or Edwards et al. in view of Egloff et al. (U.S. Patent 6,437,318).

Regarding claim 27, Mirza or Edwards et al. disclose the claimed invention as set forth above. Mirza and Edwards et al. do not specifically disclose varying a light intensity linearly. Egloff et al. teach (see Figures) varying light intensity linearly as a function of a displacement. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an arrangement in the

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method of Mirza or Edwards et al. in view of Egloff et al. to improve detection by providing incremental detection signals.

Regarding claim 28, Mirza or Edwards et al. disclose the claimed invention as set forth above. Mirza and Edwards et al. do not specifically disclose a maximum light intensity represents flow in one direction and a minimum represents flow in the opposite direction. Egloff et al. teach (see Figure 6) a maximum intensity when the displacement is in one direction and a minimum intensity there is further displacement. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide minimum and maximum signals as claimed in the method of Mirza or Edwards et al. in view of Egloff et al. to more accurately measure flow.

Regarding claim 31, Mirza or Edwards et al. disclose the claimed invention as set forth above. Mirza and Edwards et al. do not specifically disclose forming variable optical transmittivity as a function of vane displacement between aligned polarizers. Egloff et al. teach (see Figures) providing variable optical transmittivity as a function of a displacement (displacement of 14) between aligned polarizers (14, 16). Thus, Egloff et al. recognize that encoding using aligned polarizers can provide incremental signal detection. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an arrangement in the method of Mirza or Edwards et al. in view of Egloff et al. to improve detection by providing incremental signals.



***Allowable Subject Matter***

11. Claims 2-7 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 14-22 would be allowable if rewritten to overcome the 112 2<sup>nd</sup> paragraph rejections.

13. The following is a statement of reasons for the indication of allowable subject matter: a gas flow measurement device as claimed, more specifically in combination with: the vane arrangement being a light guide for guiding light from the light source through the encoder to the detector or the vane arrangement carrying a first polarizing element and detecting displacement based on the first and second polarizing element interacting to result in a range of transmitivities is not disclosed or made obvious by the prior art of record.

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl  
May 6, 2003

A handwritten signature in black ink, appearing to read 'Thanh X. Luu', with a long horizontal flourish extending to the right.

Thanh X. Luu  
Patent Examiner